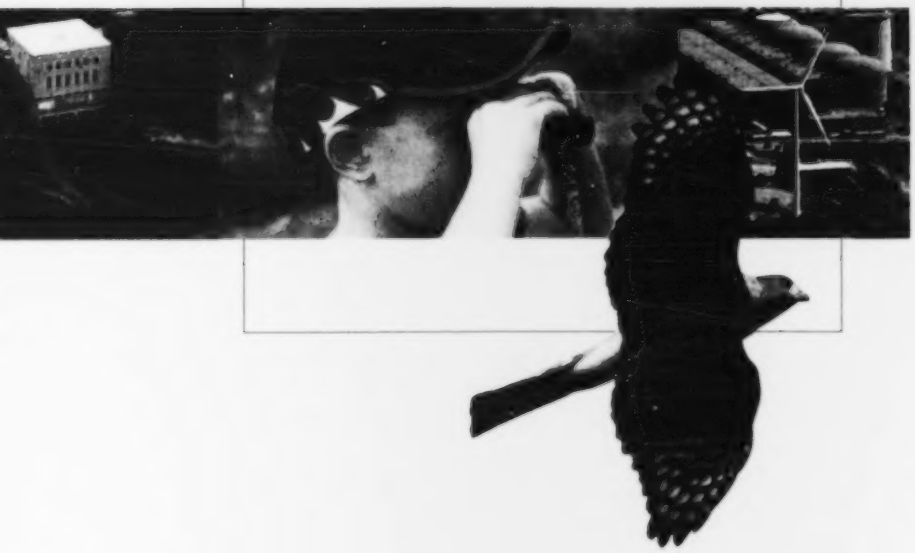
Towards Sustainable Development

2003 PROGRESS REPORT



ONTARIOPOWER GENERATION

Key Achievements

Recognizing the relationship between good stewardship and good business, OPG committed to becoming a sustainable development company in 1999. Since then, we have published an annual Towards Sustainable Development Progress Report which enables stakeholders to review our progress. OPG's key sustainable development achievements in 2003 include:

- Generated approximately two-thirds of our energy from nuclear, hydroelectric and Evergreen™ Energy sources, avoiding the equivalent emissions of 65.6 million tonnes of carbon dioxide (CO_2 – a greenhouse gas), 283,645 tonnes of sulphur dioxide (SO_2 – an acid gas), and 70,108 tonnes of nitric oxide (NO – an acid gas), if that electricity had been generated by coal-fueled stations.
- Placed into operation Pickering A, Unit 4, adding 515 megawatts of virtually air emissions-free capacity to Ontario's electricity supply.
- Achieved CEA top quartile safety performance measured in terms of accident frequency and accident severity.
- Achieved energy efficiency savings of 340 GWh, or six per cent in realized energy savings, which was double our three per cent target and in excess of the 1.3 per cent energy savings achieved in 2002.
- Continued to maintain ISO 14001 Environmental Management System certification at all of our generating plants and corporate office.
- Installed Selective Catalytic Reduction (SCR) technology at Nanticoke, Unit 7, marking the completion of a quarter billion-dollar project executed on time and under budget.
- Planted approximately 400,000 trees as part of our ongoing commitment to support biodiversity in southern Ontario, and to offset greenhouse gas emissions. By 2007, OPG will have planted two million trees, which will add 900 hectares of new forest and sequester about one million tonnes of CO_2 over the lifetime of the trees.
- Produced over 750 GWh of Green Power from our hydro, wind, biomass and solar sources, and we continued to grow our green power sales, adding CIBC and National Bank Financial as new clients.
- Designed and implemented our Sustainable Development Education Program for new supervisors, for the purpose of furthering understanding and commitment to sustainable development across the company.
- Received awards for our community outreach programs from the Ajax-Pickering Board of Trade, Clarington Board of Trade, Durham Region Children's Groundwater Festival, and Haldimand County, Ontario.
- Received the National Hydropower Association's Outstanding Stewards of America's Rivers award for the fourth consecutive year.

Sustainable Development:

"development which meets the needs of present generations without compromising the ability of future generations to meet their own needs."

- World Commission on Environment and Development, 1987

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Corporate Profile

Ontario Power Generation (OPG) is an Ontario-based electricity generator whose principal business is the generation and sale of electricity in Ontario and to interconnected markets. Our focus is on the risk-managed production and sale of reliable electricity from our competitive generation assets, while operating in a safe, open and environmentally responsible manner. As of December 31, 2003 OPG's electricity generating portfolio had a total in-service capacity of 22,777 megawatts (MW). This consisted of:

- three nuclear stations with a capacity of 6,103 MW (this excludes Pickering A Units 1 to 3, which have a capacity of 1,545 MW and are currently laid up);
- six fossil-fueled stations with a capacity of 9,718 MW;
- 36 hydroelectric stations with a capacity of 6,823 MW;
- 32 EcoLogo™-certified green power facilities with a capacity of 133 MW, comprising 29 small hydroelectric and three wind power stations (one of which, Huron Wind, is co-owned with Bruce Power L.P.).

In addition, OPG has leased two nuclear stations on a long-term basis to Bruce Power L.P. In 2003, OPG generated 109.1 terawatt-hours (TWh) of electricity.

22,777 MW of In-Service Capacity as of December 31, 2003

- **3 nuclear stations (6,103 MW)**
- **6 fossil-fueled stations (9,718 MW)**
- **36 hydroelectric stations (6,823 MW)**
- **29 EcoLogo™-certified green power hydroelectric stations (126 MW)**
- **3 wind power stations (7 MW)**
  (includes OPG's 50 per cent interest in the Huron Wind joint venture)

Message from the President of OPG and the Vice President, Sustainable Development

In this, our fifth sustainable development report, we review our progress in living up to the principles of sustainable development that have guided OPG since its inception in 1999.

We believe that as a company OPG must continue to: minimize its impact on the environment; run its businesses safely, efficiently and help make the communities in which it operates better places for people to live and work; and, create value for its shareholder.

In 2003 we continued to put these principles into practice, the results of which are described in this report.

Environmental Performance

While we know we must continue to improve in several areas, we are pleased to say that our environmental performance generally improved in 2003 when compared against 2002.

We are especially pleased with our overall environmental performance in which OPG either met or exceeded several key environmental performance targets. These included targets for regulatory compliance, air emissions, energy efficiency, and waste management. Performance against these targets improved significantly over that of the previous year. In internal energy efficiency, for example, we saved 340 GWh of electricity or six per cent in energy savings – double our three per cent target and in excess of the 1.3 per cent realized energy savings achieved in 2002. Ongoing efficiency upgrades at many of our generating stations helped drive this improved performance. We also saw improved performance in the areas of preventable spills and in waste management.

Air Quality

As a major producer of electricity, OPG recognizes that its operations have an impact on Ontario's air quality, and we are working to reduce that impact. In 2003, the completion of two major projects contributed significantly to our efforts in this area.

In September, we announced that our Unit 4 reactor at the Pickering A nuclear generating station was commercially available for service. The restart of Unit 4 adds 515 MW of capacity to Ontario's electricity supply that is virtually free of emissions contributing to smog, acid rain and global warming.

In December, we finished installing Selective Catalytic Reduction (SCR) technology on Unit 7 at our Nanticoke coal-fueled station. This marks the completion of a very large capital project, executed on time and under budget, in which SCRs were installed on two units each at Nanticoke and Lambton generating stations.

Biodiversity

OPG operates a number of biodiversity programs that benefit local communities and Ontario as a whole. OPG was among the first utilities in North America to develop and implement a policy on biodiversity conservation to help ensure that our operations do not unduly contribute to or cause the decline of species or habitats. In support of this goal, OPG and its conservation partners have planted more than 1.45 million native trees and shrubs across Ontario since 2000 – including almost 400,000 planted in 2003. When complete, our tree-planting program will result in over two million new trees and shrubs for Ontario. This will add at least 900 hectares of new forest and offset about one million tonnes of CO_2 over the lifetime of the trees, helping to reduce global warming. Other biodiversity initiatives undertaken by OPG in 2003 include species and habitat assessments at our sites, habitat restoration initiatives, and land and water management programs. In 2003, our water management efforts were recognized by the U.S. based National Hydropower Association, which gave OPG its Outstanding Stewards of America's Rivers award for the fourth consecutive year.

Community

OPG is an active participant in Ontario communities that host our facilities. Through our Corporate Citizenship Program, we partner with communities across Ontario in support of local education, environmental and community-based initiatives – many of which are described in this report. Through our "Power Within" achievement awards, we encourage our employees to be active in community life and reward and recognize those who demonstrate exceptional community commitment. For example, Jo Ann Young (Niagara Plant Group) and Ron Young (Nuclear Waste Management) received OPG's Community Service Excellence Award 2003, for their outreach as foster parents to newborns for both the Children's Aid and a non-profit adoption agency. Jo Ann and Ron have provided a stable home to over 50 babies.

OPG is also committed to being open and accountable to communities regarding our operations – regularly communicating with them through information centers at our sites, meetings with municipal organizations and officials, and various outreach initiatives. In 2003, we received several local awards honouring our environmental and community commitment, including awards from the Ajax-Pickering Board of Trade; the Clarington Board of Trade; the Durham Region Children's Groundwater Festival; and Haldimand County, Ontario.

Additional Highlights and Initiatives

In 2003, we continued to maintain our ISO 14001 accreditation for all our generating plants and our corporate office in Toronto. We are proud of our certification record under ISO 14001, the international benchmark for environmental management systems.

With respect to safety, OPG achieved an accident severity rate of 1.84 days lost per 200,000 hours worked and an all injury rate of 1.24 injuries per 200,000 hours worked – our best safety performances ever in those areas. We also successfully completed the first full year of operations of our Public Water Safety program to inform and educate people of potential hazards near our hydroelectric stations.

We had success as well in our Green Power operations. OPG has 133 MW of green power capacity generated from small hydro, wind, biomass and solar sources, plus 12 MW from power purchase agreements. In 2003, we produced over 750 GWh from these sources – enough to meet the electricity needs of 60,000 households.

To enable employees to increase their understanding of sustainable development and to encourage a "sustainability" culture across the company, in 2003 OPG designed and implemented an education program, "Sustainable Development at OPG: Our Commitment to the Environment, Society and Economy", which all new supervisors must take. As a result of this program, supervisors will be in a position to explain to employees the need and means to implement sustainable development practices on a daily basis.

We are also pleased to report that the OPG Towards Sustainable Development Report 2002 was recognized by Stratos Inc. as one of the top 10 sustainability reports produced in Canada for 2002.

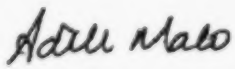
Other environmental achievements for 2003 include OPG's continued involvement in research and development of alternative energies such as distributed generation – including research into mercury emissions reduction and the financing of emerging energy technologies through our venture capital subsidiary, OPG Ventures Inc. At the end of 2003, OPG Ventures had invested $56 million in companies specializing in innovative energy technologies.

Conclusion

Increasingly, corporate success is defined by how well companies can meet a broad and complex set of stakeholder obligations and expectations. Environmental impact, community commitment, employee satisfaction and public credibility are the standards against which companies like OPG are measured and against which we must measure ourselves. Our goal is to meet these standards and, in the process, achieve success and earn the trust and respect of our stakeholders. We submit this report as a written record of our efforts in 2003 toward achieving this worthwhile objective.

Richard Dicerni

Acting President and CEO



Adèle Malo

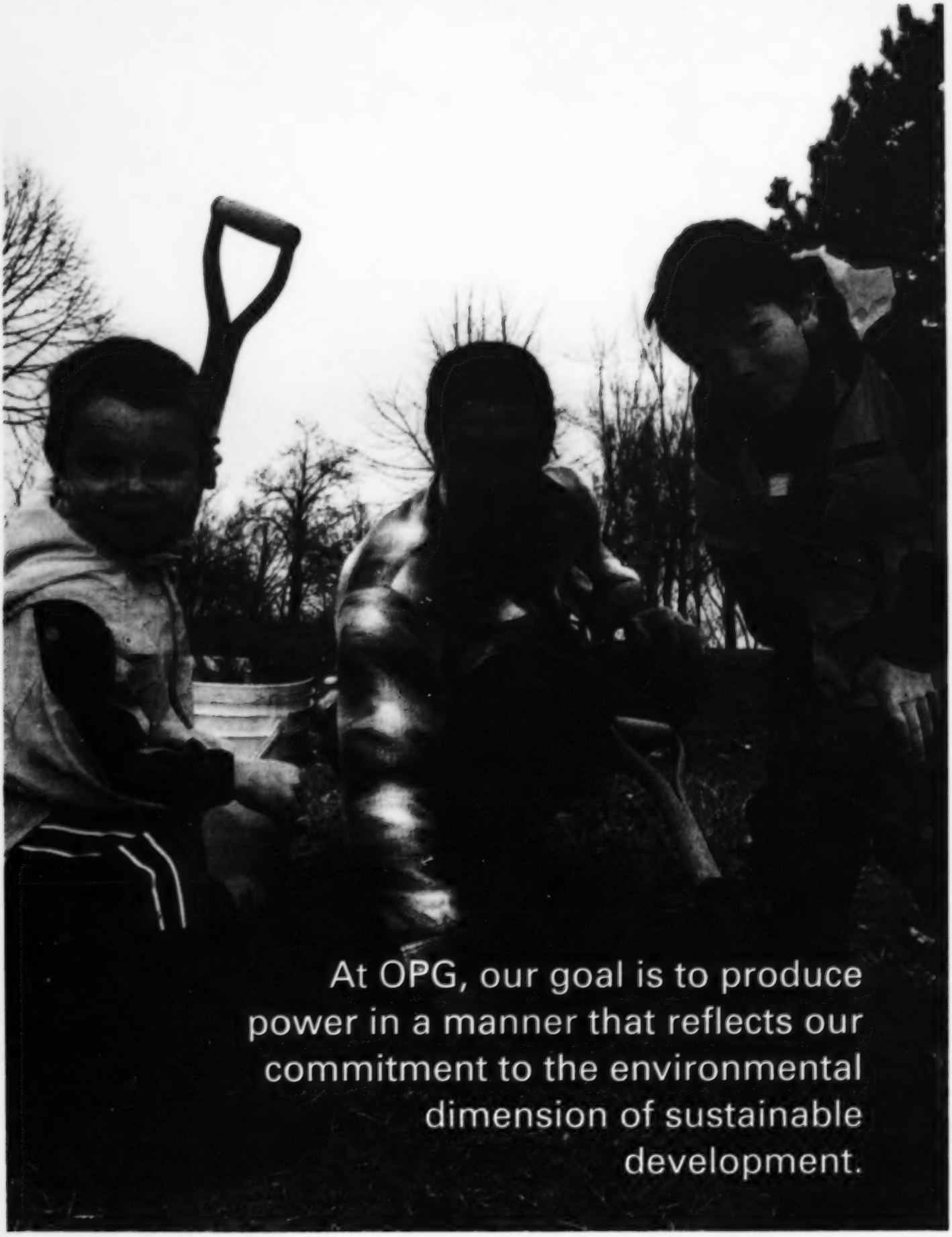
Vice President, Sustainable Development

Accountability for Sustainable Development

Accountability for sustainable development at OPG rests with the President, who is accountable to the Board of Directors for making certain the company manages the environmental, social and economic aspects of its business.

The Vice President of Sustainable Development, Adèle Malo, is responsible for ensuring that the Board of Directors remains aware of sustainable development issues that affect OPG.

To ensure that OPG employees remain "ahead-of-the-curve" in the area of sustainable development, in 2003 the company initiated a program that required all new supervisors to participate in training entitled "Sustainable Development at OPG: Our Commitment to the Environment, Society and Economy". The purpose of this ongoing training is to ensure that supervisors can advise employees of the need for, and methods of, operationalizing sustainable development on a daily basis. In 2004, these training sessions will continue to be delivered across OPG.


At OPG, our goal is to produce
power in a manner that reflects our
commitment to the environmental
dimension of sustainable
development.

Environmental Performance

ISO 14001 Environmental Management System (EMS)

The ISO 14001 EMS system helps OPG to ensure that its environmental policies are managed, implemented, checked and reviewed within an overall context of continuous improvement. The EMS is instrumental in assisting the business units to manage their environmental impacts. In 2003, all of OPG's generating plants and corporate office were subject to an annual external audit and again, all retained ISO 14001 accreditation.

Key Environmental Performance Targets

Each year, OPG sets key targets for improving its environmental performance relative to the previous year. In 2003, OPG's success in meeting targets established in the previous year was mixed (see Table 1). Specifically, success was realized in the areas of Regulatory Compliance, Energy Efficiency, Radiation Dose to Public, Low and Intermediate Level Radioactive Waste, and Ash and Gypsum Diverted from Landfills. Our performance regarding Moderate Spills and Air Emissions was less successful. In all areas where targets were not met, OPG has established programs to improve performance.

Regulatory Compliance

OPG must comply with statutes, regulations, bylaws, operating permits and Certificates of Approval (C of A's). In 2003, OPG had no major infractions (Director's orders, charges or convictions), and had 31 per cent fewer moderate infractions than in 2002 (122 in 2003 vs. 178 in 2002).

Thirty-six of the 122 moderate infractions involved effluent limit exceedances under provincial MISA (Municipal Industrial

Table 1 Corporate Environmental Performance Targets (2003)
All targets are voluntary except where otherwise specified. SOURCE: OPG

Category	2003 Target	2003 Year-End	Target Met
Spills[1]	Major (A) = 0	0	Yes
	Moderate (B) = 0	3	No
	Minor (C) ≤ 24	19	Yes
Regulatory Compliance	Major infractions[2] = 0	0	Yes
	Moderate infractions[3] ≤ 124	122	Yes
Energy Efficiency	190 GWh	339.9	Yes
Air Emissions	NO ≤ 35 Gg net[4]	39.0 gross	Yes
	SO_2 ≤ 153.5 Gg net[4]	157.9 gross	Yes
	Total Acid Gas = 215 Gg gross	196.8	Yes
	GHG (CO_2 equiv.) ≤ 26 Tg net[5]	36.5 gross	No
	NO rate ≤ 0.96 Gg/TWh delivered[6,7]	0.99	No
Radiation Dose to Public	Pickering ≤ 10.0 μSv	4.7	Yes
	Darlington ≤ 75 μSv	1.7	Yes
Low & Intermediate Level Radioactive Waste	≤ 5,300 m^3	4,069 m^3	Yes
Ash & Gypsum diverted from landfill	≥ 700,000 tonnes	824,398 tonnes	Yes

(1) OPG ranks the severity of spills according to guidelines set by the company's Spills Severity Rating Procedure, which mirrors provincial Ministry of the Environment guidelines.
(2) Major infractions are defined as Ministry of the Environment Director's Orders, charges or convictions.
(3) Moderate infractions include Municipal Industrial Strategy for Abatement and Certificate of Approval violations exceeding limits, and administrative items such as missed samples and data logger failures.
(4) The use of emission reduction credits will be necessary to meet 2003 net emission targets for NO and SO_2 in accordance with regulatory requirements.
(5) No GHG emission reduction credits were applied in 2003. See Greenhouse Gases (GHG) section, p. 9, for discussion.
(6) The higher emission rate was attributable to higher variability in the operation of coal-fueled units as a result of electricity market conditions.
(7) The Corporate performance target of NO emission rate is based on "delivered energy." Delivered energy is defined as "gross energy output from a generating unit, less unit service (energy supplied by and consumed by the unit), while connected to the electricity grid." The NO emission rate (Gg/TWh-delivered) is the total of all fossil station NO emissions divided by the total delivered energy from all fossil units.

Environmental Performance

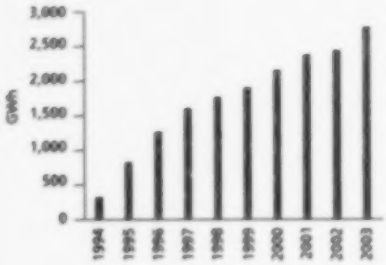


FIGURE 1: Cumulative Annualized Internal Energy Efficiency Savings (1994-2003)

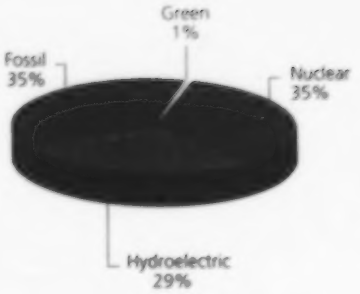


FIGURE 2: OPG's Generation Mix, 2003

Strategy for Abatement) regulations or site-specific C of As, compared with 38 exceedances in 2002, 13 in 2001 and 52 in 2000.

Most moderate infractions were administrative in nature (e.g., late reporting) and had no direct impact on the environment. Still, reducing these infractions continues to be a priority that OPG is addressing through awareness training, better procedures and preventive maintenance.

In 2004, our goal is to again realize zero major infractions, and to reduce MISA and C of A infractions from 2003 levels. Ultimately, our goal is to eliminate minor and moderate regulatory infractions altogether.

Internal Energy Efficiency

OPG set a target of reducing its internal energy consumption by three per cent annually between 2000 and 2004. This target is considered a "best practice" for industrial users by the Alliance to Save Energy, a Washington-based coalition promoting leadership in responsible energy use.

In 2003, OPG exceeded its internal energy efficiency target, with realized savings of six per cent. This result continues OPG's positive long-term energy efficiency performance, since an efficiency program was introduced in 1994 by its predecessor company, Ontario Hydro (see Figure 1).

OPG's annualized energy savings increased by 2,783 GWh between 1994 and 2003, representing monetary savings of $120 million per year (@ 4.3 cents per kilowatt-hour) and annual emission savings of 2.6 million tonnes of CO_2.

Customers: Through the application of EnVision™ Energy (OPG's energy efficiency software), large industrial customers can reduce their internal energy consumption (see page 25 for details).

Education: In 2003, OPG funded the LivingWise program, which teaches schoolchildren and their families how to conserve energy and water, and includes an energy-saving technology kit. The program was delivered to 1,700 students in the Nanticoke area. Also in 2003, OPG supported the delivery of Destination Conservation, a program designed to increase sustainable development by helping schools conserve water, save energy and reduce waste. This program was delivered to 25 schools in the Toronto Catholic District School Board.

On-line resources: OPG is a major sponsor of the On-Line Energy Efficiency Centre, which offers state-of-the-art advice to help industry trim energy costs. The site is managed by the not-for-profit Canadian Energy Efficiency Alliance (www.energyefficiency.org).

Better Building Partnership: OPG has worked with the Better Building Partnership to identify means to reduce energy consumption in Toronto-based buildings. Indeed, OPG's head office has been recognized by the Partnership for its historical energy efficiency initiatives (e.g., energy efficient lighting, motion detectors on lighting). OPG also promotes energy efficiency through its alliances with stakeholders such as Natural Resources Canada, American Council for an Energy Efficient Economy, and the Electric Power Research Institute.

Air

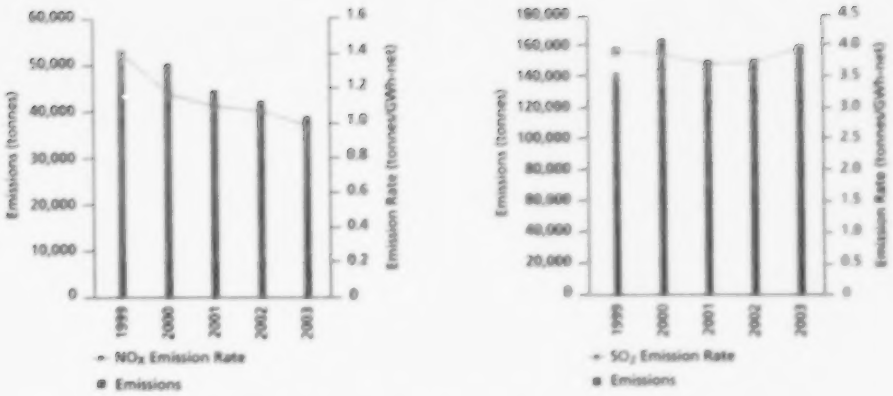


FIGURE 3: NO_x and SO_2 Emissions and Emission Rates for OPG Fossil Generation (1999-2003)

Generation Mix

During 2003, OPG's electricity production was two-thirds derived from hydroelectric and nuclear sources (see Figure 2).

Six fossil-fuel stations produced the balance of OPG power. Five of these stations use coal as their primary source of energy and one is dual fueled by oil and natural gas. Fossil stations have the advantage of being capable of responding on short notice to peaks in consumer demand for electricity.

Nitrogen Oxides (NO_x) and Sulphur Dioxide (SO_2) Emissions

Air emissions released from a coal fuel source include nitrogen oxides (NO_x), sulphur dioxide (SO_2) and carbon dioxide (CO_2). Other contaminants, released in lesser amounts, are documented in Appendices A and B. OPG's NO_x emissions are reported as nitric oxide (NO).

NO_x and SO_2, known as acid gases, are largely responsible for the formation of acid precipitation that impacts aquatic and terrestrial ecosystems, and structural material such as limestone. These gases are also key components in the formation of ground-level ozone and smog. CO_2 is a greenhouse gas linked to climate change.

OPG continues to make efforts to address acid gas emissions from its fossil-fueled plants. In 2003, total fossil emissions of acid gas amounted to 196,815 tonnes. Comparisons of OPG's acid gas emissions since 1998 show a reduction of 1,985 tonnes, or about one per cent.

A major NO_x related milestone was achieved in 2003, with the completed installation of four Selective Catalytic Reduction (SCR) units; two at Nanticoke GS and two at Lambton GS.

Unlike regulatory requirements in the U.S., where NO_x is controlled only during the ozone season (May to September), OPG's four SCRs will operate throughout the year.

SCRs complement previous improvements directed toward reducing NO_x emissions, such as the installation of low NO_x burners, smart computer controls and the use of natural gas at the Lennox GS.

In 2003, new Continuous Emission Monitors (CEM) were installed to comply with the Emission Trading Regulation which established monitoring requirements for industrial emitters participating in emissions trading. The CEMs measure SO_2, NO_x concentrations, and flue gas flow. Advanced in design, the CEMs are capable of measuring other, unregulated pollutants with only minor equipment modification should the need arise. The monitors were installed on all chimneys at Nanticoke, Thunder Bay, Atikokan, and Lennox and Lambton Units 1 and 2. Lambton 3 and 4 units did not need new CEMs because monitors meeting the new regulation were installed when the Flue Gas Desulphurization equipment was built.

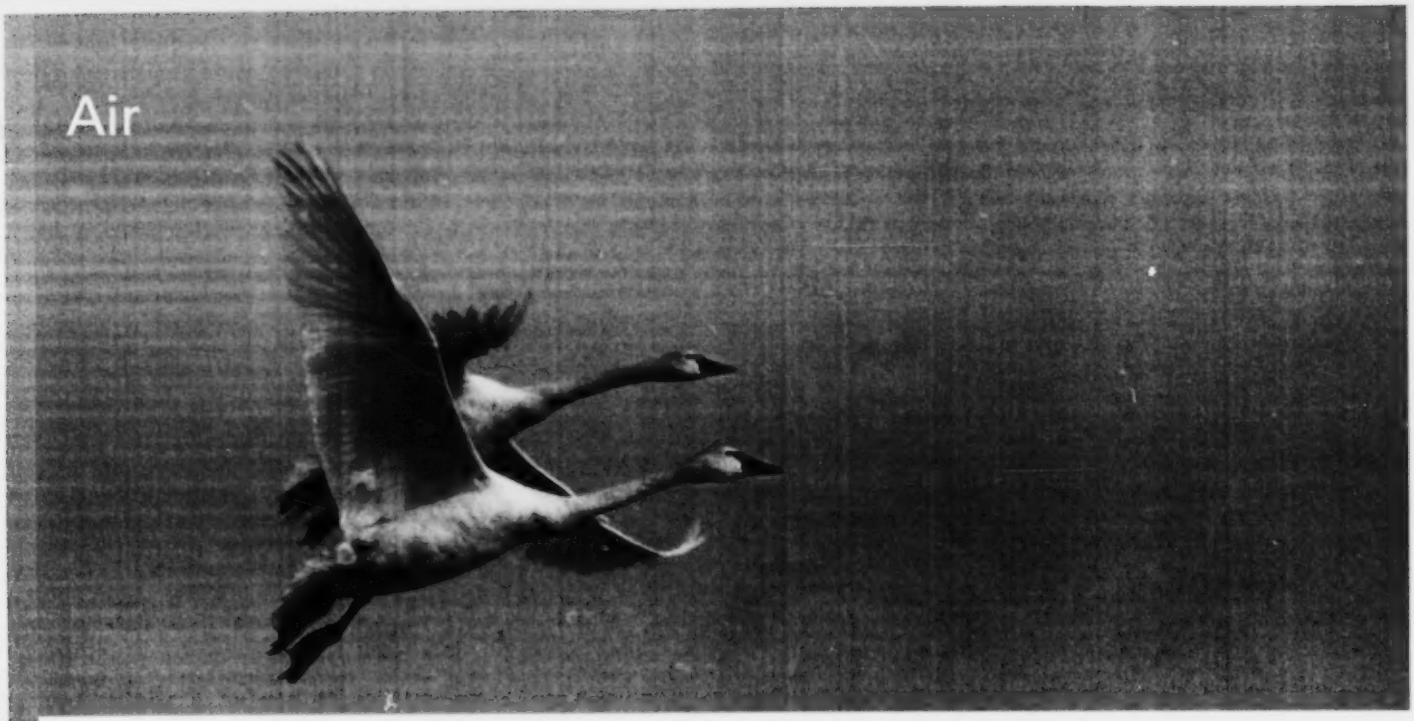
As a result of OPG's efforts to reduce NO_x discharge, total NO_x emissions and NO_x emission rates have declined over the period 1999-2003 (see Figure 3). Further NO_x emission reductions are expected in 2004 due to the full operation of all four SCR units.

SO_2 emissions are dependent on various factors, including the amount of fuel consumed, fuel sulphur content and the operational efficiency of emission control technology. Total SO_2 emissions and emission rate increased in 2003 (see Figure 3), due to adjustments in fuel inventory and the temporary by-pass of the Lambton SO_2 flue gas desulphurization equipment while work was completed to tune the performance of the newly connected SCR units. Accordingly, in 2004 SO_2 emissions are expected to decline.

Greenhouse Gases (GHG)

The primary greenhouse gas (GHG) resulting from OPG's operations is CO_2, and in 2003 total gross CO_2 emissions were 36.5 million tonnes (see Figure 4).

Air



The CO_2 emission rate from the fossil fleet has increased from 880 tonnes/GWh-net in 1999 to 935 tonnes/GWh-net in 2003. This higher rate corresponds to a slight decrease in fuel conversion efficiency from 35.6 per cent to 33.0 per cent over this time period. This change in conversion efficiency has occurred, in part, as a result of changes to the dispatch of units in order to meet electricity demand.

OPG has operated under a GHG emissions target and strategy since 1995, when Ontario Hydro first committed to stabilize net GHG emissions at 1990 levels by 2000. OPG continues to operate under this voluntary target. To meet its year 2000 voluntary target, OPG reduced its net CO_2 emissions by 12.6 million tonnes through internal energy efficiency projects and through the purchase of emission reduction credits from third parties. To meet the voluntary limit of 26 million tonnes of CO_2 in 2001, 2002 and 2003, OPG would need to acquire CO_2 emission reduction credits of 11.1, 10.7 and 10.5 million tonnes respectively. Towards that goal, OPG has purchased 10.7 million tonnes of CO_2 emission reduction credits.

In 2003, OPG initiated a review of its voluntary GHG emission target in response to proposed targets under the Federal government's Climate Change Plan, continuing uncertainty surrounding the entry into force of the Kyoto Protocol, and the Province's plans to close Ontario's coal-fueled generating stations. Given these uncertainties, including the impact of closing coal-fueled plants on OPG's GHG emissions profile (essentially reducing it to zero beyond 2007), OPG has decided to delay further investment in CO_2 emission reduction credits and plans to extend the voluntary "true-up period" (the period in which we can apply credits to earlier years) for its voluntary target to 2010.

OPG will continue to avoid and reduce GHG emissions through our commitment to nuclear and hydroelectric generation, a continued focus on promoting internal energy efficiency, and a carbon sequestration program realized through our tree planting efforts (see Biodiversity Management Programs for further discussion).

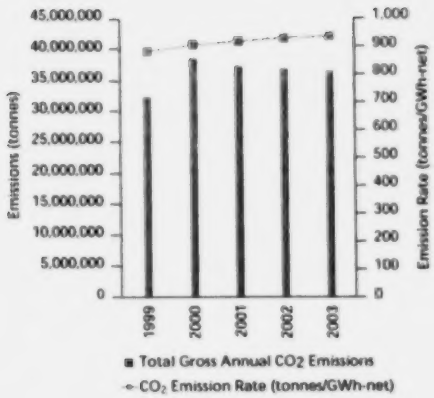


FIGURE 4: CO_2 Emissions and CO_2 Emission Rates for OPG Fossil Generation (1999-2003)

GHG reduction accomplishments realized by OPG in 2003 include:

- Pickering A Unit 4 was returned to service in late 2003, avoiding 748,000 tonnes of CO_2 emissions by year end.
- OPG's internal energy efficiency program achieved 340 GWh of electricity savings, thereby reducing CO_2 emissions by an additional 318,000 tonnes per year, bringing the cumulative total reduced since 1994 to 2.6 million tonnes per year.
- OPG planted approximately 400,000 trees in 2003, as part of our commitment to plant a total of two million trees by 2007, which in turn will promote carbon sequestration and conserve biodiversity. When complete, this planting effort will offset about one million tonnes of CO_2 over the lifetime of the trees and will restore at least 900 hectares of new forest within southern Ontario. To date, OPG has planted over 1.45 million native trees throughout southern Ontario.
- OPG continued to support international efforts to address climate change through its work with the e7 (e7, which comprises nine companies from around the world, spearheads sustainable development projects and human capacity building activities in developing nations worldwide). The e7 is developing two projects under the Clean Development Mechanism (CDM) in Bhutan and Galapagos, and a Joint Implementation project to improve the energy efficiency of elementary schools in Bulgaria. In 2003, the e7 published the *e7 Guide to Implementing Projects under the Clean Development Mechanism* and met with representatives of electricity companies from developing countries to discuss their concerns about the implementation of the CDM.

OPG puts a high priority on supporting research that can help to minimize the impact of electricity generation on the environment. Specific initiatives related to management of GHG emissions are:

- **Canadian Clean Power Coalition,** seeks to demonstrate new and retrofit clean coal-based electricity generation technology by 2010. Other partners include TransAlta, SaskPower, ATCO, NSPower, EPCOR, Luscar Ltd., EPRI and IEA. OPG was involved in the Phase 1 development of this project.
- **BIOCAP Canada,** a Canadian research organization dedicated to finding biology-based solutions to the challenges of climate change.
- **International Energy Agency (IEA) Greenhouse Gas Research & Development and Clean Coal Centre,** which has programs to study GHG reduction, capture and sequestration.
- **University of Waterloo Study,** which focuses on carbon capture and sequestration in southern Ontario.

Mercury

In support of the development of Canada-wide standards for mercury emissions from the electric power generation sector, OPG works in conjunction with other Canadian utilities to implement a voluntary two-year mercury monitoring and reporting program. This program involves the sampling, analysis and reporting of coal and ash for mercury content and testing for mercury in flue gas. Data is publicly available on the Canadian Electricity Association Web site at www.ceamercuryprogram.ca.

Air

Pickering Generating Station

Because there is no proven, commercially available mercury control technology for utility boilers, OPG continues to work in partnership with other utilities and organizations in the development and testing of mercury control technology.

Atmospheric Sciences

A five year OPG/NSERC Industrial Research Chair in Atmospheric Sciences was established at the University of Waterloo to address urban and regional air pollution and the effects of aerosols and atmospheric particulate matter on climate change. Once fully established, researchers will use powerful and comprehensive regional atmospheric modelling tools to investigate the chemical, physical and meteorological factors causing air pollution that affects large areas of southern Canada. Laboratory research will also be conducted to study the effects of atmospheric aerosols and particulate matter on cloud formation and the transmittance of light through the atmosphere, both of which impact climate and weather stability.

Other Contaminants

Appendix B includes OPG's National Pollutant Release Inventory (NPRI) emissions to air, water and land for 2002 (see page 35). Based on this data, compiled by Environment Canada, no OPG plant is ranked among the 100 facilities in Ontario which release the largest amounts of known carcinogens to air or water.

Radiation

The operation and maintenance of our nuclear reactors releases low levels of radioactivity. The design of the nuclear plants minimizes these releases through, for example, multiple passive barriers including a one-kilometre exclusion zone separating the public from the reactor building. Barriers such as air dryers are used to remove tritium from the air, and filters capture particulate matter and iodine. Operating procedures also protect the health of employees and the public.

An assessment called "Critical Group Dose" is used to measure radiation exposure to members of the public who live in close proximity to nuclear plants. Critical Group Dose calculations focus on the public's actual eating and drinking habits as obtained from survey data. The survey includes six age groups: adult, three month old nursing infant, one year old infant, and children aged five, 10 and 15 years. Critical Group Dose is measured in microsieverts (μSv), an international unit. For comparative purposes, the average Canadian receives about 2,000 μSv a year from natural sources such as cosmic rays and radon in the soil. In 2003, Critical Group Dose levels for Pickering and Darlington GS were 4.7 and 1.7 μSv, respectively, substantially below the limit of 1,000 μSv set by government. Prior to 2003, the exposure of the public to radiation was calculated as "Dose to Public", which was not based on a direct sampling of the population living close to a nuclear plant, but rather on the theoretical dose a person might receive if they lived just outside a station boundary 24 hours per day, drank local water and milk, and ate local fish and produce. The Critical Group Dose is considered a more realistic calculation of radiation exposure than Dose to Public.

Water

Water is integral to OPG's power generation, as a large-scale, largely emissions free source of energy. It is also OPG's lowest-cost source of electricity. In addition to using water as a direct means to generate power, it is highly important to OPG for cooling and various processing uses at the nuclear and fossil-fueled generating stations.

Water Use in Hydroelectric Generation

In 2003, OPG generated 32,403 GWh of renewable hydroelectric power, a decrease of 5.4 per cent relative to 2002. This differential was due to a relatively dry summer season in 2003, which lowered water levels, and subsequently hydroelectric capacity and generation.

OPG continues to assess opportunities to produce hydroelectric power more efficiently. Over the period 2003-2007, OPG will spend approximately $300 million on hydroelectric facility upgrades and energy efficiency enhancement.

Water Use in Fossil and Nuclear Generation

Virtually all water used by OPG's fossil and nuclear stations is used for cooling purposes. The water passes through the station only once and is returned to its source at a slightly higher temperature. Water taking is governed by the Ministry of the Environment Permits to Take Water.

In 2003, OPG's fossil and nuclear plants used approximately 13,473 million cubic metres of water, as compared to 13,852 million cubic metres in 2002.

Water Management Planning

The Ministry of Natural Resources (MNR) introduced Water Management Planning to Ontario in 2001. Accordingly, through a consultative process, the MNR, OPG and local stakeholders explore sustainable solutions for water resources management. Since 2001, progress continues to be made to develop water management plans for provincially regulated river systems. To provide guidance, Steering, Planning and Public Advisory Committees and Evergreen™ Energy continue to develop plans for river systems connected to OPG's Northwest and Northeast plant groups. Specifically, the committees provide direction to balance each region's unique environmental, social, cultural and recreational interests with OPG's business mandate to generate safe, reliable and economically competitive electricity.

Water

Northwest Plant Group is putting OPG's Biodiversity and Sustainable Development Policy into practice in a big way, through the water management planning (WMP) process. In 2002 we began developing water management plans for three important northwestern Ontario river systems (the Kaministiquia, the Nipigon and the Aguasabon Rivers), covering a total drainage area of more than 49,000 km^2. While the development of WMP is still underway, OPG has initiated significant studies as a result of issues identified through the planning process.

For example, during the Kaministiquia River WMP process, concern and interest for the health of Lake Sturgeon was identified as an issue. It was felt that further study was required to understand and assess spawning locations, success and flow requirements. To facilitate data collection, and information gathering for the study, OPG has agreed to alter its operation to pass more water over Kakabeka Falls during the period from May 15 through to the end of June. This work has already started through joint efforts by the Ontario Ministry of Natural Resources (MNR) and OPG, and is expected to carry on over the next several years.

OPG/NSERC Industrial Research Chair in Watershed Biogeochemistry

The OPG/NSERC (Natural Sciences and Engineering Research Council of Canada) Chair in Watershed Biogeochemistry, Trent University, addressed potential regional effects of changes in OPG's sulphur, nitrogen and mercury emissions that were anticipated while nuclear generation facilities in Ontario were renovated in the mid-to-late 1990's. Research carried out by the Chair focused on various sensitive lakes and watersheds in the Muskoka-Haliburton region of south-central Ontario.

Key findings of the research determined that although estimated air emissions of SO_2 by Ontario Hydro (OPG's predecessor company) increased by 40 per cent from 1993-1996 to 1998-2002, deposition of sulphur in aquatic systems in south-central Ontario did not increase measurably. Similarly, there was no observable increase in nitrogen or mercury deposition.

Despite these observations, long-term chemical recovery of lakes in the region lagged behind the relatively neutral deposition of sulphur, and recovery remains at about half (measured by decrease in sulphate) to almost non-existent (measured by increase in pH). Biological recovery has not occurred to any significant degree.

The research provides guidance for OPG regarding:

- How sulphur and nitrogen air emission levels have changed over the past five years as well as how they currently affect the aquatic environment of south-central Ontario;
- How future emission levels governed by existing regulation may ultimately affect the Ontario environment; and
- Maximum emission levels of sulphur and nitrogen that must be observed to ensure the integrity of ecosystems.

Land

Tuesdays On The Trail at Darlington Generating Station

Biodiversity Management Programs

The conservation of biological diversity is an integral part of our sustainable development efforts and is an essential pre-condition to achieving sustainability. Biological diversity, or "biodiversity", represents the full diversity of life. It includes genetic, species and habitat diversity. Each watershed, ecosystem, or regional landscape has evolved its own natural diversity of life.

Unsustainable human activity is the root cause of ecosystem stress and biodiversity losses worldwide. Intense land use pressures in the settled landscapes of southern Ontario, and the associated loss and fragmentation of remnant habitats, pose great threats to area-sensitive species. The generation of electricity can further contribute to these ecosystem stresses through both direct and indirect pathways. Populations of some species can be adversely affected through the loss and fragmentation of habitat, and in the case of hydroelectric generation, through the modification of water flow regimes and the creation of barriers. Ecosystems, and the species they support, can also be indirectly affected through various pollution pathways arising from air and water emissions associated with the generation of electricity. OPG's extensive pollution control efforts help to minimize these indirect adverse effects.

In recognition of potential impacts, OPG has implemented a progressive Biodiversity Policy that is responsive to the Convention on Biological Diversity, Canada's *Species at Risk Act* and the *Ontario Endangered Species Act*. Our business challenge and policy goal is to demonstrate that we can co-exist with nature without causing or contributing to the long-term decline of species, or the habitats upon which they depend, on a regional basis. Protection of known sites with significant natural heritage values represents a priority action. Where this is not feasible, we will restore areas that are recoverable and as a last resort, replace habitat in kind where economically and ecologically practical. Managing species at risk represents the highest priority for OPG's biodiversity management programs.

OPG has received acclaim for its Biodiversity Policy by several external groups including Canada's Federal Biodiversity Convention Office, the World Business Council for Sustainable Development, the Electric Power Research Institute and the Wildlife Habitat Council. We are making significant contributions to the protection and restoration of nature both on and off our sites.

OPG's award-winning biodiversity program includes the undertaking of biodiversity assessments and management plans at each of our major plants and land holdings. The involvement of the local community and local environmental non-governmental organizations through various partnerships helps to ensure that plans are responsive to community interests and regional conservation goals. They have the added advantage of building trust and a positive company reputation.

OPG's habitat protection and restoration efforts represent an important contribution to the province's biodiversity conservation efforts. The issue is more than just focusing on species that are formally listed as being "at risk". Our proactive stewardship efforts also focus on restoring habitats for species that may be declining regionally, thereby preventing other species from becoming imperiled, or listed as "at risk." Efforts to enhance supplies of forest-interior habitat, tall grass prairie and savannah habitats are just a few examples of restoration activities that contribute to the recovery of declining populations.

Land

These actions are consistent with the stewardship efforts that are promoted under Canada's *Species at Risk Act* and Canada's Stewardship Agenda. Some of our more notable plant-based initiatives in 2003 included:

- Revised Biodiversity Management Plans were issued for both Darlington and Pickering Generating Stations (GS). These revisions included shifts in priorities to reflect current information on species and habitats identified by natural resource conservation agencies as local or regional in importance. In addition to local site habitat projects, both plans included working with partners to reduce regional habitat fragmentation and implement programs to further conservation education.
- OPG Nuclear contributed funds, helped organize the technical program, and participated in the 12th International Conference on Aquatic Invasive Species. This topic is part of an important conference series addressing one of the major contributors to loss of biodiversity at local, regional, national and global levels. OPG (and its predecessor Ontario Hydro) have sponsored and helped organize all conferences in the series.
- Pickering Nuclear funded and participated in community partnership activities for planning marsh management and carp control actions in the adjacent wetlands of Frenchman's Bay, Hydro Marsh and Duffin's Creek Marsh. A total of 23 activities were undertaken in 2003 to enhance the environment and provide conservation education opportunities.
- Darlington Nuclear's long-standing community partnership with Courtice Secondary School continued to flourish with these on-site projects supported by students:
  - constructing and erecting new blue bird boxes and maintaining existing ones.
  - designing and constructing two wildlife observation kiosks which were installed by OPG along the Waterfront Trail. The trail stretches 350 km along the shores of Lake Ontario, linking natural areas with marinas, historic locations, art galleries and festivals.
  - expanding and maintaining the butterfly garden at Darlington's Information Centre.
- Tree-planting involved OPG employees, Boy Scouts of Canada and local schools in planting 1,000 trees and/or shrubs along each of the Darlington and Pickering segments of the Waterfront Trail. Pickering Nuclear's tree planting partnering of employees with Air Cadets and schools added another 700 trees and shrubs including locations in schoolyards for 20 native trees, each three to four meters tall.
- Lennox fossil station conducted a biological field study to follow up on an initial 1998 study. Emphasis was on obtaining new information and monitoring the changes and evaluating the effectiveness of previous environmental enhancement activities.
- Hydroelectric facilities updated rare species occurrences mapping and significant natural areas mapping relative to year 2000 observations.
- Lakeview fossil station partnered with local community and conservation groups in tree planting activities, and monitored on-site peregrine falcons.
- Niagara Plant Group conducted biological surveys of the Sir Adam Beck complex to identify rare, threatened and endangered species of plants and wildlife. Related management plans were also developed.
- Hydroelectric facilities in northwestern, northeastern, and central Ontario have partnered with government agencies and stakeholders to identify key environmental issues related to management of water flows and levels.
- Ottawa-St. Lawrence Plant Group installed loon nesting platforms on the Madawaska River to help sustain populations.

OPG works with community partners to install bird boxes at generating stations.

One of OPG's more notable partnerships has been with the Wildlife Habitat Council (WHC). The Wildlife Habitat Council is a non-profit, non-lobbying group of corporations, conservation organizations and individuals dedicated to assisting corporate landowners in the development of programs that protect, conserve and enhance wildlife habitat and biodiversity and foster environmental values.

OPG has submitted several of its site habitat management plans to the WHC for independent third party professional review and accreditation. Four of our sites (Lambton, Nanticoke, Darlington and Pickering) have been certified by the WHC. Both of our nuclear stations, Darlington GS and Pickering GS, have won international awards for their habitat management plans and associated community involvement and education programs. To maintain certification, OPG must pass external audits with the WHC on a biennial basis to ensure plans are being effectively implemented and remain current. This action is in addition to annual reporting, monitoring and audits required to maintain our ISO 14001 registered environmental management systems.

Carbon Sequestration

OPG's biodiversity management effort also involves an off-site component, our Carbon Sequestration and Biodiversity Management (CSBM) program. This tree planting program links the need to sequester carbon, as an offset to greenhouse gas emissions from our fossil plants, with habitat restoration for forest wildlife that are at risk in the highly fragmented landscapes of southern Ontario. Since the spring of 2000, OPG and its conservation partners have planted in excess of 1.45 million native trees and shrubs matched to site conditions, on more than 700 hectares of land, addressing a variety of ecological restoration priorities across the southern Ontario landscape. In 2003 OPG, through its various partners, planted approximately 400,000 trees.

The CSBM program focuses on restoring forest habitat in southern Ontario, which has lost greater than 80 per cent of its original forest cover. The Carolinian biotic zone of southern Ontario is considered one of the most ecologically imperiled regions in Canada and supports 71 nationally endangered or threatened species, 50 species and 37 vegetation types considered globally rare, over 500 provincially rare plant and animal species, and over 65 provincially rare vegetation community types. Restoration sites are strategically chosen based upon "Big Picture" conservation needs.

Plantings are targeted to expand key "core" forested areas and connect woodland patches to help promote the recovery of declining area-sensitive wildlife that are at risk because of the loss and fragmentation of habitat. Management plans have been developed for each site with explicit objectives linked to regional biodiversity conservation priorities. OPG is a significant player in the restoration of forest habitat in southern Ontario.

OPG estimates that its total tree planting efforts will trap and offset about 1,000,000 tonnes of carbon dioxide over the lifetime of the trees. The program is unique in linking a GHG emissions problem to a biodiversity solution, by working with nature to help sequester some of our CO_2 emissions. These plantings also help to reduce erosion, enhance soil composition, recycle nutrients and enhance stream and air quality.

The CSBM program has been very well received by the environmental community and has been recognized with external awards for three consecutive years:

- 2002 – Wildlife Habitat Canada's Forest Stewardship Recognition Program.
- 2001 – Carolinian Canada Coalition's Conservation Award.
- 2000 – State of the Lakes Ecosystem Conference (SOLEC) - Success Story Award from Environment Canada and the U.S. Environmental Protection Agency.

Land

The Power Within Environment Award recognizes employees who make an extraordinary contribution to a more sustainable energy future or show outstanding protection of the environment, while meeting our business needs. The 2003 Environment Award winner was Judy Ryan, Director of Environment, Nuclear, for being a key driving force in making Pickering Nuclear an environmental leader in the community. Her work contributed to pollution prevention (through the successful development and implementation of an environmental action plan for the station) and protection of ecosystem integrity (through partnerships with community organizations to improve environmentally sensitive habitats). By increasing respect for environmental issues within the organizational culture at Pickering, Judy has effected the changes necessary to help reduce the environmental impacts of the station.

Divert By-Products from Landfill

Consistent with OPG's long-term conservation efforts, we continue to develop commercial markets for the major by-products of fossil fuel combustion: coal fly ash, coal bottom ash and gypsum. Fly ash is used in manufacturing cement and concrete, and in controlled low strength material and fill applications. Bottom ash is used as granular fill in roadbeds and gypsum is used for the manufacture of wallboard. Coal fly ash is also used in engineered landfills. We are exploring the potential for coal fly ash to be used as filler in paint and plastics, and as a soil conditioner.

In 2003, we utilized 56 per cent of these by-products, or 824,398 tonnes, that would otherwise have been sent to landfills. This represents a steady increase in tonnes of by-product utilization over the last several years. The percentage of utilization has increased from 42 per cent in 2000.

Land Assessment and Remediation

In response to a Director's Order from the Ontario Ministry of the Environment, OPG introduced a program in 1997 to assess and remediate historical contamination on properties occupied by its generating facilities. Accordingly, OPG ranked the sites as high, medium and low in reference to the need for remediation. OPG's first Site Assessment Plan, filed with the Ministry in 1998 and each year thereafter, identified 50 priority sites with known or potential contamination. The contaminants of concern were fuel oil, transformer oil, waste lubricants and tritium. OPG has now completed all of the site assessments required by the Director's Order. Assessment of medium and low priority sites continues under OPG's voluntary site assessment program.

As of 2003, remediation of 10 priority sites was complete. Remediation of non-priority sites was completed at one hydroelectric site (Chenaux), one fossil site (Hearn-PEC) and one nuclear site (Pickering). Remediation was ongoing at four hydroelectric sites (Beck 1, Beck 2, Pump GS, Dymond SC), one fossil site (Hearn), and four nuclear sites (one at Pickering; three at Bruce). Phase III groundwater monitoring continued at one hydroelectric site (Abitibi Canyon).

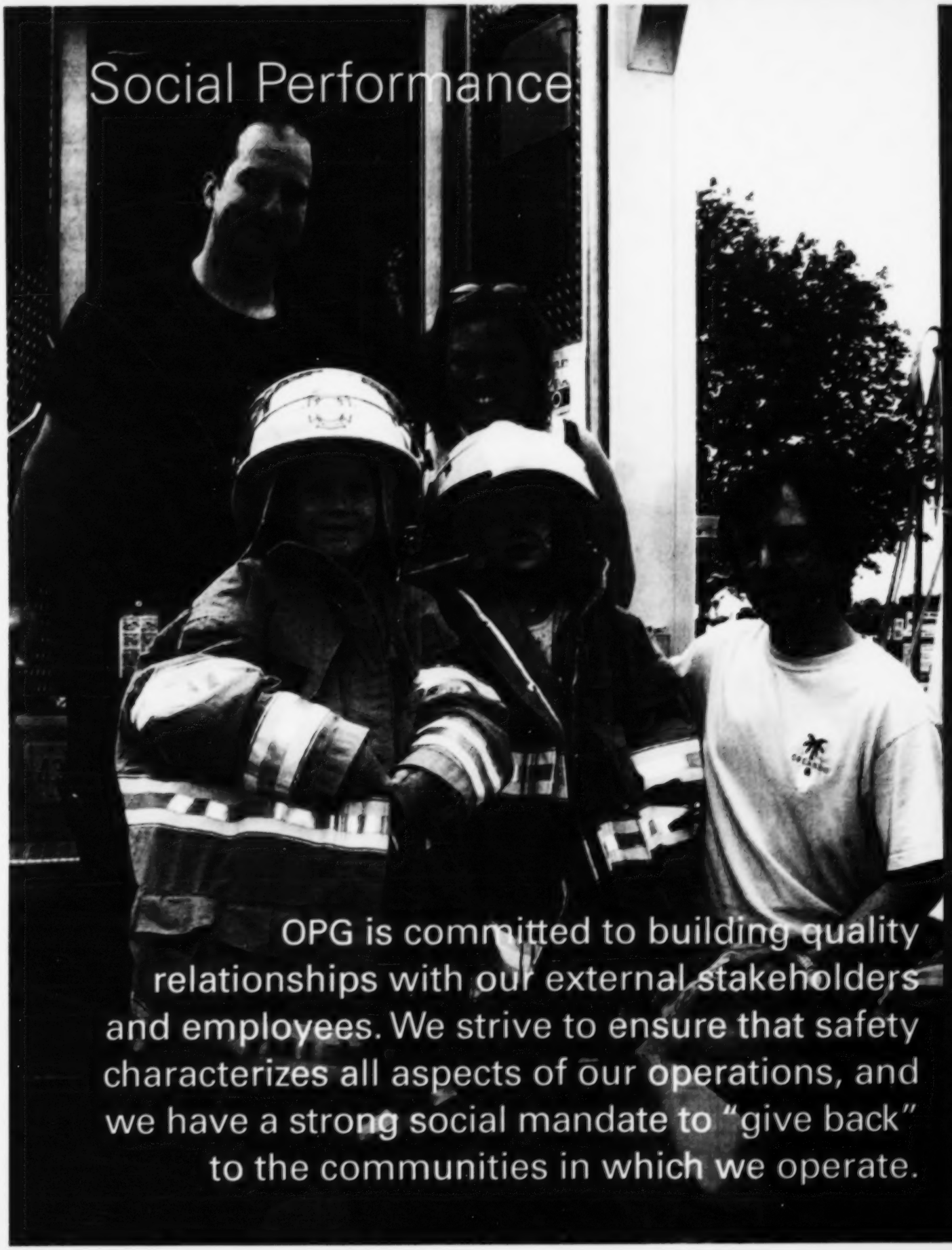
Remediation plans were prepared for four nuclear sites (all at Darlington). Remediation has been deferred to 2004 at three hydroelectric sites (Chats Falls, Decew Falls, and Wawaitin) and to 2005 at one fossil site (Lakeview).

Remediation of medium- and low-priority sites, which are defined as those that represent minimal concern based on the source and distribution path of contaminants, will be complete in 2007. All assessment and remediation work was reviewed by a third party group and approved by the Ministry of the Environment.

Elimination of PCBs

OPG is on course to eliminate all of its in-storage PCB waste and in-service high-level PCBs by the end of 2007. OPG, and its predecessor company Ontario Hydro, have reduced the inventory of in-service PCBs and PCB waste by approximately 68 per cent since 1994. In 2003, OPG shipped approximately 109 tonnes of PCB waste for destruction. As of December 31, 2003, OPG's PCB waste inventory was 1,316 tonnes, as compared to 4,123 tonnes in 1994.

Social Performance



OPG is committed to building quality relationships with our external stakeholders and employees. We strive to ensure that safety characterizes all aspects of our operations, and we have a strong social mandate to "give back" to the communities in which we operate.

Social Performance

Safety Performance

In reference to Accident Severity Rate (ASR) and All Injury Rate (AIR) performance, OPG achieved its targets for 2003, and realized its best safety performance since its incorporation in 1999.

OPG's ASR Performance in 2003 of 1.84 days lost per 200,000 hours worked was 85 per cent better than the Canadian Electricity Association (CEA) top quartile rate (3 year rolling average) of 11.95 days lost per 200,000 hours worked. OPG's AIR performance of 1.24 injuries/illnesses per 200,000 hours worked in 2003 was 34 per cent better than the CEA top quartile (three year rolling average) of 1.87.

During 2003, OPG's Corporate Safety Rules were revised for the first time in 10 years. This undertaking involved a comprehensive management/union review and update of the rules, with the objective of creating risk-based, shop-floor focused rules that better aligned with current legislation and that provided better protection in high-risk areas. Implementation activities have included face-to-face presentations, computer based training and local procedural revisions. The new rules will be fully implemented company-wide by July 1, 2004.

OPG's conventional safety management system is being enhanced to conform with the British Standards Institution's Occupational Health and Safety Assessment Series 18001 (OHSAS 18001), which is consistent with the ISO 14001 Environmental Management System to which OPG is certified. Registration has been successfully completed for OPG's hydroelectric plant groups and Nanticoke GS, and work continues toward registration or equivalency for other areas of OPG.

During 2003, OPG also continued several key initiatives to enhance public, employee and contractor safety, including an ongoing Public Waterways Safety program to educate and warn people of potential safety hazards at hydroelectric sites across the province.

Employee Wellness

Improving the health and wellness of our employees through prevention-based wellness programs reduces absenteeism and increases productivity. Accordingly, OPG continues to provide a broad spectrum of employee support and education programs, including:

- Monthly wellness themes supported with employee "Lunch and Learn" sessions, Web-based tools and access to Nurse Care Coordinators for consultation and assistance.
- Assistance in the early and safe return to work of employees who are injured or ill, through the company's award-winning Disability Management Program.
- Employee Family Assistance, including advice, counselling and referral service, available to employees, their spouses and dependants.
- Prevention programs such as on-site flu shots.
- Employee fitness support, using on-site or community facilities, and provision for employee sponsored "fun runs."
- Special risk based strategies to minimize impacts of health issues such as SARS and West Nile virus. OPG's West Nile virus strategy included employee communication and development of facility plans to minimize mosquito breeding sites, stagnant water removal, larvae sampling, larviciding, cooperation with local and regional governments, and bird surveillance.

Workplace Diversity

In OPG, the focus of our diversity and inclusion strategy is not limited to what goes on within the walls of our plants and offices. Rather, we continue to build partnerships externally that will benefit individuals, communities and help us attract and retain a diverse pool of talent.

OPG employees are involved in a wide range of agencies, programs and activities to help increase awareness and understanding of diversity issues, and address the needs of designated group members – women, visible minorities, people with disabilities and aboriginal people. Our outreach efforts vary across the province, depending on the community and the opportunities. In 2003, OPG's ongoing commitment to provide mentors for foreign-trained engineers was recognized by Skills for Change, Toronto. We were also recognized by Strategic Employment Solutions, an employment agency for persons with disabilities, for participating in their Business Advisory Council.

As in previous years, we continued to support the White Ribbon Campaign and its goal of eradicating violence against women. Across the company, annual events took place to increase awareness of this issue and raise money for women's shelters. In addition, the Corporate Tripartite Diversity Committee launched a joint campaign to raise awareness and provide contact information to help victims of domestic violence find assistance.

The OPG workforce has a rich diversity of cultures and religions. To celebrate this wealth, we produced a poster that presents a wide range of dates significant to the diversity of our employees, their traditions and interests. In keeping with the fundamental

OPG's Power Within Achievement Awards pay tribute to the outstanding accomplishments of its employees in nine categories. A Community Service Excellence category was established in 2002 to encourage and reward employees for exceptional commitment and service to their community. At the 2003 awards ceremony, 82 employees were honoured for achievements ranging from personal leadership to production team excellence. These award winners truly embody the company's vision of excellence.

value of respect, the poster graphically depicts the "Golden Rule" as articulated in 13 different religions. The dates are also, for the first time, incorporated into OPG workplace calendars. OPG demonstrates concrete commitment by providing prayer and meeting spaces to help meet the religious and spiritual needs of employees. We aim to build awareness and promote dialogue, while reinforcing the fundamental value of respect for one another.

Through our efforts externally and internally – large and small – we continue to build an organizational culture that truly welcomes diversity and enables individual and business success. These efforts have not gone unnoticed – Human Resources Development Canada awarded OPG the highest possible rating for Diversity and Employment Equity programs based on our 2002 Annual Report. Sustained effort and organizational support will help us to continue to realize the results of these efforts.

Code of Business Conduct

OPG's Code of Business Conduct reinforces our belief that personal values and integrity are the source of sound, ethical business decisions, including respect for the environment and a commitment to health and safety.

Our Chief Ethics Officer, John Murphy, reports directly to OPG's President and CEO and provides an annual report to the Human Resources and Governance Committee of the Board of Directors on our ethics program.

Striving to be a Good Neighbour

OPG wants to support the communities in which we operate by providing information about our facilities, and supporting local initiatives, including educational, environmental, and recreational programs, that help make those communities better places in which to live and work. We strive to be a good neighbour.

By communicating with our neighbours we learn more about each other. Through regular meetings with mayors, MPPs, and MPs, at formal public consultation meetings, or informally at the many community functions we attend, OPG tries to understand what is important to the community, provides information and answers questions about OPG's operations.

Getting the News to our Neighbours: On a regular basis, our major generating plants, and the Western Waste Management Facility in Tiverton, publish *Neighbours*. This OPG newsletter provides information on operations and what OPG is doing to help support the local community. *Neighbours* is distributed to local elected officials, local community organizations and residents. We encourage readers to provide us with comments, and we are committed to responding to readers' questions.

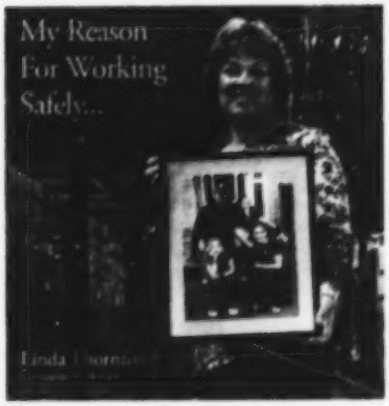
Nuclear Report Cards: Each quarter, OPG publishes a report card on our nuclear operations as part of keeping our promise to operate in an open manner – in this case by providing key statistics on how well our nuclear stations are working. The report cards also compare OPG's performance with industry benchmarks which are based on industry best practices or performance of top performing nuclear utilities. The report cards are distributed in the Darlington and Pickering plant communities, to elected officials, stakeholders, and our neighbours.

Stay Clear, Stay Safe: Hydroelectric dams and stations and the areas around them are not places for recreation. In 2003, we continued to inform people of the dangers of coming too close to hydroelectric facilities. Our newspaper, magazine and radio ads describe these dangers. We also distributed brochures, videos, a computer game for children, and provided numerous presentations to schools and community groups, to help people understand why the areas and waters around hydroelectric dams and stations can be dangerous.

Independent research conducted in site communities during the fall of 2003 indicates that OPG's public education program is working. People are more aware of what they need to do to stay safe near hydroelectric dams and stations. The public is supportive of OPG's efforts to upgrade and improve safety measures, including signs, booms, and buoys around our hydroelectric facilities.

www.opg.com: OPG's web site continues to be a helpful source of up-to-date information about the company. It is used by students, media, suppliers and the general public who are interested in better understanding our operations. The site contains environmental and financial reports, nuclear report cards, news releases, a photo library of our facilities and information on our generating stations. In 2003, over 200,000 people visited OPG's Web site. Users can submit questions and comments, and all inquiries are answered.

Social Performance



In 2003, over 400 employees participated in a "Why I Work Safely" Employee Poster Campaign, launched to raise safety awareness.

Corporate Citizenship Program

In 2003, OPG supported a variety of environmental, educational and community initiatives that contributed to the well-being of the communities in which we operate. OPG's more notable sponsorship achievements in these areas of commitment include:

- **Nanticoke GS's Support of the Grand River Conservation Authority's Taquanyah Nature Centre:** Nanticoke's multi-year support will assist Conservation Authority staff in restarting their outdoor education programs at the Taquanyah Nature Centre in conjunction with local school boards. OPG's contribution supports the delivery of outdoor education programs, facility improvements and the purchase of educational equipment.
- **City of Toronto Bike Plan for 2003:** OPG supported the City of Toronto Bike Plan which encourages cycling as a sustainable alternative to cars, and which aims to reduce the amount of smog in the GTA. Bike Plan initiatives included more than 100 community events that took place during Bike Week in May that helped promote safe cycling along with the City's Cycling Ambassador Program. Cycling ambassadors reached almost 200,000 people across the GTA at events in 2003, helping to educate the public on safe cycling practices and adherence to the rules of the road.
- **Durham Children's Groundwater Festival and the Eastern Ontario Children's Water Festival:** These festivals help educate thousands of elementary students, teachers, parents and the public about the importance of water conservation.
- **Science North's Big Change Campaign for Environmental Education:** OPG's commitment to environmental education is demonstrated through our support for Science North's new Dynamic Earth Sciences Centre in Sudbury.
- **March Break 2003 at the Ontario Science Centre:** Over 40 OPG ambassadors were on hand over a nine day event to help teach children about electricity and renewable energy. The activity was energized using the OPG mobile exhibit and the "Fun with Energy" Educational Activity Folder and Renewable Energy Tattoos which children proudly wore and collected.
- **National Engineering Week, March 2003:** The program was an educational initiative targeted at children aged seven to 14, their parents, teachers, and the Ontario public to raise awareness of the role that engineering and technology play in our daily lives and to encourage young people to consider a career in engineering and technology. During 2003, engineers, technicians and technologists, and engineering and technology students organized over 90 events and activities in 35 communities across Ontario, attracting participation by over 27,000 children, teens and adults. In the largest event, over 17,000 children and parents participated in NEW construction workshops at four locations in Ontario including the Ontario Science Centre. OPG engineers and staff have participated in events/workshops at the Ontario Science Centre, Science North, the Canadian Science & Technology Museum in Ottawa and the London Regional Children's Museum.
- **OPG Secondary School Student Achievement Award (SSSAA):** The 2003 awards celebrated 377 exceptional double cohort recipients from 100 Secondary Schools in our plant site communities. These awards recognize the recipient's outstanding academic achievement, communication and leadership skills and involvement in extracurricular activities. The awards target students with a particular interest in post-secondary studies in the fields of engineering, science, technology, environmental studies, physics, mathematics and business. An OPG ambassador presents the SSSAA at each school graduation and each

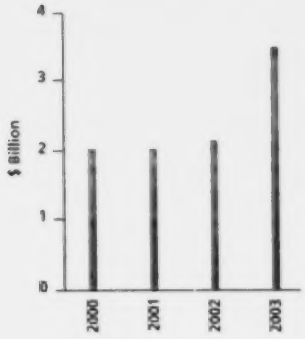
The 2003 OPG Charity Campaign raised over $1.65 million from employees and pensioners and supported over 1900 charities, with the largest recipient being the United Way.

recipient receives a bursary to put towards their post-secondary education and a Certificate of Achievement.

- **FIRST Robotics Canadian Regional Competition for High School Students:** OPG was the title sponsor for this event, which included 51 teams and 2,500 students. In addition to title sponsorship, OPG also sponsored three school teams in the competition from our plant site communities (Lakeview, Lambton and Pickering). Of particular note was the team sponsorship of Sinclair High School which had a team of nine OPG mentors who volunteered their time to assist students with their robot and participation in the competition.
- **The Lung Association's Breath of Hope Relays:** The Breath of Hope Relay has become the Lung Association of Ontario's premier fundraising event, which since inception in 2001 has raised well over $400,000 in support of the Association's lung health research and education programs. Relays in Sarnia and Ottawa took place in 2003, however, due to SARS the Toronto Relay at the SkyDome was rescheduled for June 2004.
- **Youth Amateur Sports Teams in all our Major Plant Site Communities Across Ontario:** OPG sponsors hundreds of teams and thousands of youth (under 18) who are playing on OPG sponsored teams in hockey, baseball, lacrosse, basketball, soccer and ringette, as well as supporting figure skating, karate, gymnastics, swimming and rollerblading clubs.
- **Western Waste Management Facility, Inaugural Kincardine OPG Youth Basketball League:** OPG supported over 170 participants, ages 11 to 14, to advance skills of cooperation and team development, based on the model of sportsmanship. The program was a rousing success due to the support from OPG volunteers and the community, including players, parents, local schools, teachers and coaches.
- **Annual Niagara Winter Festival of Lights:** OPG takes part in this festival. Nearly one million people visit Niagara Falls from mid-November to mid-January each year to see the Festival of Lights, making the attraction one of the largest tourist draws in the region, which in turn supports the Niagara economy. In the fall of 2003, The American Business Association listed the Niagara Festival of Lights as one of the top 100 events in North America.

OPG creates economic value for the government and residents of Ontario. Value creation results through technical innovations in electricity production and consumption, competitive employee compensation programs, local procurement and cash transfer payments to the province.

Economic Performance



- OPG Employee Salaries
- Payments in lieu of taxes, gross revenue charges (incl water rental payments), dividends, interest on long term debt, market power mitigation agreement rebates and other payments to the Province of Ontario

FIGURE 5: OPG salaries and payments made to the Province of Ontario in lieu of taxes, dividends and water rental payments.

Contributing to the Economy of Ontario

OPG sells energy directly into the real time energy spot market, which is operated by the Independent Electricity Market Operator. As such, the majority of OPG's revenue in 2003 was derived from spot market sales for which OPG received a variable price based on supply and demand. Additionally, we sell fixed-price commodity and value-added energy products and services directly to large- and mid-sized commercial and industrial businesses, and energy retailers. We do not sell electricity directly to residential customers.

OPG's net loss for 2003 was $491 million and included an impairment loss on the coal-fueled generating stations of $473 million after tax due to the expected early shutdown of these stations by 2007. This loss compared with a net income of $67 million for 2002. Excluding the impairment loss on the coal-fueled stations, OPG had a loss of $18 million, a decrease of $85 million compared to 2002 earnings. This decrease in earnings from ongoing operations was mainly a result of lower electricity production and higher fuel costs for coal, oil and natural gas.

Employee Compensation and Provincial Payments

To attract and retain a highly qualified workforce OPG offers employees competitive compensation. In 2003, total compensation to OPG employees totaled approximately $1.25 billion (see Figure 5). Since most OPG employees live in Ontario and purchase their goods and services locally, this compensation transfers wealth back into the province.

OPG creates additional benefit for the provincial economy through payments made in lieu of taxes, gross revenue charges (including water rental payments), dividends, interest on long term debt, market power mitigation agreement rebates, and other payments to the Province of Ontario. In 2003, these payments totaled nearly $2.2 billion.

Purchase of Goods and Services

Through the purchase of goods and services, OPG also supports the Province of Ontario. In 2003, the total purchase of goods and services in Ontario by OPG totaled $1.8 billion (see Figure 6).

Information and Productivity Solutions

OPG has responded to customer needs for information and products that will translate into productivity gains, as illustrated by the following examples:

- **Envision™ Energy** is a proprietary energy-management software solution developed by OPG. This software is designed to collect, monitor, analyze and manage data from utility meters for the purpose of generating information pertaining to the consumption of energy by commercial and industrial entities – *if it's metered, it can be monitored.* Envision™ Energy makes it possible for consumption data for electricity, natural gas, water, compressed air, steam and nitrogen, among others, to be automatically totaled and analyzed from a cost/benefit perspective.
- **Retailer Consolidated Billing Service,** developed by OPG, provides a single invoice for all electricity charges for facilities throughout the province. Businesses with multiple locations are provided with the opportunity to reduce and simplify the administrative challenges of processing multiple invoices from multiple vendors. Detailed information, in electronic format for each facility, provides insight into their energy consumption, enabling customers to better understand, track, and manage their electricity use.
- **Wholesale Verification Services,** also developed by OPG, helps wholesale market customers confirm the accuracy of their Independent Market Operator statements and invoices. Verifying meter readings, reconciling the data, and

Economic Performance

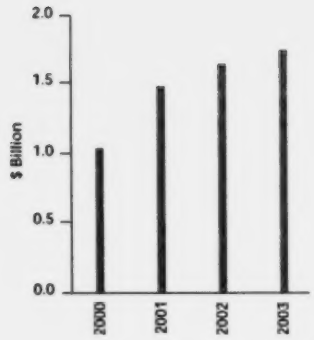


FIGURE 6: Total purchase of goods and services by OPG within Ontario.

ensuring the calculations are correct can be onerous. Wholesale Verification Services takes care of these tasks for customers so they can focus on their core business, not energy verification.

Green Power

As part of its sustainability strategy, during 2003 OPG continued to support green power production. Green power is electricity generated from low environmental impact renewable energy sources such as wind, solar, biomass and small hydroelectric facilities. OPG's green power portfolio consists of 32 facilities with a capacity of 133 MW, plus power purchase agreements totaling 12 MW, which generated 757 GWh of power in 2003, enough to service approximately 60,000 homes. All Evergreen™ Energy is generated from facilities that are EcoLogo^{M} certified through the Federal Government's Environmental Choice Program. Green power helps reduce our dependence on carbon based, non-renewable sources and new generation helps avoid acid gas and greenhouse gas emissions.

Green power is good for business and good for the environment. OPG offers its green power for sale to large commercial and industrial customers directly and to residential customers through retailers such as Oakville Hydro Energy Services. Companies purchase green power as part of their effort to reduce their environmental footprint and make a statement to stakeholders that their organization has strong sustainability values.

OPG signed agreements to supply green power to a number of organizations in 2003, including the Canadian Imperial Bank of Commerce and National Bank Financial.

In 2003, OPG continued to support and supply green power generation in Ontario, as illustrated by:

- **Pickering Wind Generating Station:** In 2003, the Pickering Wind Generating Station completed its second full year of operation and received EcoLogo^{M} certification. Total output was about 2.7 GWh.
- **Huron Wind Farm:** In 2003, the Huron Wind Farm (a joint venture between OPG and Bruce Power L.P.) completed its first year of operation. The wind farm also received EcoLogo^{M} certification and qualified for payments under the Federal Wind Power Production Incentive program. Despite a number of outages in the first few months of operation, the wind farm produced over 8 GWh. It is expected that output from the wind farm will be substantially higher in future years.
- **Healey and McVittie Generating Stations:** Environmental screening and interconnection studies were undertaken for both Healey Falls and McVittie re-developments.
- **Wind Prospecting:** OPG continued to scout potential locations for wind farms in Ontario. In 2003, OPG and our partners erected 15 meteorological towers around the province to monitor wind conditions, and continued to option land for potential wind farm developments.
- **Erie Flooring BioOil Project:** OPG provided co-funding and technical support for a planned 2.5 MW commercial demonstration of Dynamotive's fast pyrolysis process that will convert wood waste from the Erie Flooring plant near London into electricity and heat. The plant is scheduled to be in-service by mid-year 2004.

Sponsorships

In 2003, OPG provided financial support for the following green power conferences and related initiatives:

- Canadian Bioenergy Association, which held its first annual conference in Vancouver, BC.
- Canadian Wind Energy Association, which held its annual conference in

Pincher Creek, AB.

- Canadian Solar Industries Association, which held its annual conference in Ottawa, ON.
- Pollution Probe and Summerhill Group, who held a Green Power Workshop in Toronto, and funded printing of a Primer on Renewable Technologies used at the workshop.
- Solar Technology Education Project at the University of Waterloo, which raised funding to install a 4 kW PV array on a student building at the university.
- Grade 5 Teachers' Kit on Green Power with the Science and Technology in Education Alliance.
- Mobile Watts on Wheels solar display to numerous customer and public events around the province.

OPG Ventures Inc.

Through its venture capital group OPG Ventures Inc., OPG continues to invest in enterprises that are developing and commercializing leading-edge energy technologies that could advance sustainable development. Since it was established in 2001, OPG Ventures has invested about $56 million directly and indirectly in companies that are developing technologies that generate, transmit, store, transact or utilize electricity more efficiently, more cost effectively and with reduced environmental impact.

OPG Ventures focuses its investments on renewable energy, distributed energy, portable power systems, energy storage, central generation plant optimization technologies, advanced grid components and control systems, and innovative end-use energy utilization technologies.

OPG Ventures invests in early-stage, private companies. While its main objective is to generate attractive financial returns, OPG Ventures is also helping to nurture new technologies that may enhance the efficiency and environmental performance of OPG's core operations. Overall, this investment strategy provides OPG with a window on emerging technologies that could shape the power industry of the future.

In 2003, OPG Ventures was again ranked by an independent monitoring agency as among the most active investors in North America in "cleantech" ventures involving alternative energy and other resource optimization technologies. In addition to a number of follow-on investments in existing portfolio companies, two new direct investments were added, one in Enginion AG, and another in an Ontario based company, RuggedCom Inc.

OPG Ventures' Investments Make an Impact in Ontario: The recent Ontario Electricity Conservation and Supply Task Force has identified a need and proposed a plan for: 1) developing new generation and renewable power supply options, 2) undertaking demand side management initiatives, and 3) enhancing the overall reliability of the transmission and distribution grid system of the province. Three of OPGV's portfolio companies are well positioned to help address these challenges.

One of OPGV's investments, Solena Group Inc., is commercializing a waste-to-energy technology based on high-temperature plasma gasification. The technology is capable of consuming a range of waste streams and producing net electrical energy, without pollution related by-products or emissions typically associated with conventional incineration methods.

SmartSynch Inc., another OPG Ventures investment, has the potential to play a role in providing advanced smartmeters as part of a key demand side management initiative for Ontario. Smartmeters, in conjunction with appropriate real-time pricing signals, have been shown to reduce demand by at least five per cent in jurisdictions such as California. SmartSynch is the leading provider of smartmeters for large commercial and industrial customers, having shipped over 40,000 smartmeters to over 25 leading power utilities in the U.S. The company is currently working with several partners to identify pilot opportunities with local distribution companies in Ontario.

Sustainable Development Reporting by OPG

The research firm, Stratos Inc., published the document *Building Confidence: Corporate Sustainability Reporting in Canada, in December 2003* (www.sustainabilityreporting.ca). This document assessed sustainability reporting in Canada for three purposes: to provide a detailed description and assessment of sustainability reporting, to highlight the efforts of Canadian corporate sustainability reporters, and to identify opportunities to improve reporting practices and subsequently extend the usefulness of these reports.

The Stratos Inc. publication presented detailed assessments of the sustainability reports of 35 Canadian companies. OPG was one of 11 companies (due to tied scoring) that ranked "in the top 10" of the 35 reports that Stratos assessed. Notably, in reference to environmental performance, OPG received the second highest score of any company in Canada.

Your Feedback

This document, OPG's fifth Towards Sustainable Development Progress Report, profiles the company's strengths and weaknesses regarding environmental, social and economic performance.

To assist OPG in improving its sustainable development performance, you are invited to submit comments to the Vice President of Sustainable Development, Adèle Malo, at the coordinates provided on the back cover of this report. Your comments will prove invaluable in helping us to strengthen our sustainable development performance. Any questions you submit will receive a response.

OPG's licence to operate depends upon the support of its shareholder, the Government of Ontario, and the residents of the communities in which the company operates. Recognizing that environmental, social and economic best practices, the three interdependent components of sustainable development, reflect the expectations of our key stakeholders, OPG's resolve to be a sustainable development company will remain a core commitment.

Appendix A

Ontario Power Generation for the years ended December 31

General Information | Net Generation | Dose to Public

NUCLEAR

Pickering A & B GS

Generation capacity:
Pickering A: 2,060 MW net
Pickering B: 2,064 MW net

Located on Lake Ontario in the city of Pickering, each generating station has 4 units. Three of the Pickering A units are temporarily out of service during the nuclear recovery program.
Number of used fuel bundles stored on site: 504,245

Generation (net GWh)				
2003	2002	2001	2000	1999
12,770	14,300	12,957	9,968	13,649

Dose to Public (μSv)				
2003[1]	2002	2001	2000	1999
4.7	6.3	6.8	3.6	13.1

Darlington GS

Generation capacity:
3,524 MW net

Located on Lake Ontario in the town of Newcastle, 70 km east of Toronto. This generating station has 4 units.
Number of used fuel bundles stored on site: 234,433

Generation (net GWh)				
2003	2002	2001	2000	1999
24,810	27,600	26,142	26,581	25,411

Dose to Public (μSv)				
2003	2002	2001	2000	1999
1.7	1.1	1.2	1.8	3.8

(1) In 2003, Dose to Public was calculated as "Critical Group Dose". See section on Radiation (p. 12) for explanation.

Glossary

k kilo x 10^3 kg = 1,000 grams	kWh (kilowatt-hour) = unit of electricity production
M Mega x 10^6 Mg = one million grams = one tonne	MWh (megawatt-hour) = 1,000 kWh which is approximately equivalent to the electricity used by one household in a month
G Giga x 10^9 Gg = 1,000 tonnes	GWh (gigawatt-hour) = one million kilowatt-hours which is approximately equivalent to the electricity used by 80 homes in one year
T Tera x10^{12} Tg = one million tonnes	TWh (terawatt-hour) = 1,000 GWh which is approximately equivalent to the electricity used by 80,000 homes in one year. In 2003, OPG generated 109.1 TWh (net) of electricity
Gross generation (generally expressed in MWh)	Total electricity produced by a generating station
Net generation (generally expressed in MWh)	Gross generation minus total internal energy use (energy produced by and consumed by the genertion units, plus energy for common station service drawn from outside the generating station, i.e., from the electricity grid)
Delivered generation (generally expressed in MWh)	Gross energy output from a generating unit, less unit service (energy supplied by and consumed by the unit) while connected to the electricity grid
Generation capacity (generally expressed in MW)	Indicator of generating station size based on its capacity to produce electricity on a continuous basis

Appendix A

General Information | Net Generation | Emissions

FOSSIL

Atikokan GS

Generation capacity: 215 MW

Located west of Thunder Bay, the station has 1 coal-fired unit equipped with low-NOx burners.

Generation (net GWh)				
2003	2002	2001	2000	1999
946	823	838	994	1,115

Emissions (tonnes)					
	2003	2002	2001	2000	1999
SO_2	6,446	5,757	4,480	4,820	5,560
NO	1,217	1,013	950	1,100	1,310
CO_2	996,000	889,000	850,000	1,020,000	1,130,000

Lakeview GS

Generation capacity: 1,140 MW

Located in Mississauga. The station has 8 coal-fired units, 4 of which are currently mothballed.

Generation (net GWh)				
2003	2002	2001	2000	1999
2,806	2,450	3,081	2,905	3,271

Emissions (tonnes)					
	2003	2002	2001	2000	1999
SO_2	17,573	14,340	19,000	16,900	18,100
NO	3,675	3,160	5,050	6,480	8,740
CO_2	2,731,000	2,340,000	2,760,000	2,700,000	3,000,000

Lambton GS

Generation capacity: 1,975 MW

Located on the St. Clair River south of Sarnia, the station has 4 coal-fired units, 2 of which are equipped with SO_2 scrubbers and selective catalytic reduction (SCR) equipment to reduce NO_x emissions.

Generation (net GWh)				
2003	2002	2001	2000	1999
10,636	10,022	10,472	12,415	9,001

Emissions (tonnes)					
	2003	2002	2001	2000	1999
SO_2	36,877	29,910	28,300	41,400	27,300
NO	7,149	9,790	11,800	14,800	12,800
CO_2	9,499,000	8,990,000	9,420,000	10,800,000	7,800,000

Lennox GS

Generation capacity: 2,140 MW

Located on Lake Ontario in the town of Greater Napanee. The station has 4 oil and/or natural gas-fired units.

Generation (net GWh)				
2003	2002	2001	2000	1999
2,775	2,762	3,243	1,288	2,393

Emissions (tonnes)					
	2003	2002	2001	2000	1999
SO_2	4,059	2,260	1,880	655	1,750
NO	1,941	1,860	2,450	1,080	2,130
CO_2	1,955,000	1,250,000	1,880,000	843,000	1,600,000

Nanticoke GS

Generation capacity: 3,938 MW

Located on Lake Erie, the station has 8 coal-fired units fitted with low-NO_x burners, 2 of which are equipped with selective catalytic reduction (SCR) equipment to reduce NO_x emissions.

Generation (net GWh)				
2003	2002	2001	2000	1999
20,393	22,156	21,124	23,519	19,038

Emissions (tonnes)					
	2003	2002	2001	2000	1999
SO_2	83,969	86,670	86,500	92,900	81,800
NO	23,051	24,420	22,400	25,200	24,300
CO_2	19,737,000	21,370,000	20,260,000	21,500,000	17,000,000

Thunder Bay GS

Generation capacity: 310 MW

Located in Thunder Bay, this station has 2 coal-fired units.

Generation (net GWh)				
2003	2002	2001	2000	1999
1,474	1,490	1,670	1,613	1,643

Emissions (tonnes)					
	2003	2002	2001	2000	1999
SO_2	8,885	9,100	8,810	7,490	7,720
NO	1,972	2,042	1,970	1,870	2,090
CO_2	1,581,000	1,663,000	1,800,000	1,620,000	1,600,000

General information

Net Generation

HYDROELECTRIC

Niagara Plant Group

Generation capacity: 2,314 MW

Includes 5 stations, HQ in Niagara area

Generation (net GWh)				
2003	2002	2001	2000	1999
11,944	12,268	11,860	12,246	12,355

Ottawa-St. Lawrence Plant Group

Generation capacity: 2,571 MW

Includes 10 stations, HQ in Renfrew

Generation (net GWh)				
2003	2002	2001	2000	1999
11,935	12,262	11,494	11,873	11,550

Northeast Plant Group

Generation capacity: 1,287 MW

Includes 13 stations, HQ in Timmins

Generation (net GWh)				
2003	2002	2001	2000	1999
5,515	4,758	4,740	4,671	4,958

Northwest Plant Group

Generation capacity: 661 MW

Includes 10 stations, HQ in Thunder Bay

Generation (net GWh)				
2003	2002	2001	2000	1999
2,982	4,755	5,018	5,017	14,228

EVERGREEN ENERGY

Evergreen Energy EcoLogo^{M}-certified

Generation capacity: 153 MW

HQ in North Bay

EcoLogo^{M}-certified Green Power generation capacity from 32 OPG stations (29 small hydro stations including 4 NEPG stations), 2 wind turbines, and 50% of Huron Wind (5 wind turbines, partnership with a consortium of Canadian companies): 133 MW (at Dec 31, 2003)

EcoLogo^{M}-certified Green Power capacity available from Power Purchase Agreements: 12 MW

Total available EcoLogo^{M}-certified Green Power capacity: 145 MW net

Generation (net GWh)				
2003	2002	2001	2000	1999
716	671	664	610	540
41	42	41		
757	713	704		

Other Evergreen Energy Capacity

Other Evergreen Energy capacity (non-EcoLogo – Eugenia Falls hydroelectric station): 6.1 MW net

Other capacity pending EcoLogo^{M} certification in 2001, certified in 2002 (Pickering Wind GS): 1.8 MW net

Generation (net GWh)				
18	24	31	29	17
		0.7		

Appendix B

Indicator	2003	2002	2001	2000	1999
ENERGY GENERATION BY SOURCES (gross GWh)					
Fossil	41,235	41,632	42,100	44,500	38,000
Hydroelectric (Renewable) (excl. Evergreen Energy)[1]	32,097	34,256	33,200	33,990	33,160
Nuclear	40,353	44,800	51,200	64,300	65,900
Evergreen Energy (includes 4 N.E. Plant Group stations, wind, power purchases)	774	737	736	610	540
Total Internal Energy Generated	114,459	121,425	127,236	143,400	137,600
ENERGY GENERATION BY SOURCE (net GWh)[2]					
Fossil	39,030	39,600	40,400	42,700	36,500
Hydroelectric (Renewable) (excl. Evergreen Energy)[3]	31,677	33,563	33,100	33,790	33,060
Nuclear	37,700	41,900	47,800	59,800	61,400
Evergreen Energy (includes 4 N.E. Plant Group stations, wind, power purchases)	774	737	736	610	540
Total Internal Energy Output	109,181	115,800	122,036	136,900	131,500
ENERGY CONVERSION EFFICIENCY OF FOSSIL GENERATING STATIONS					
Total Energy Input (GWh equiv.)	118,215	118,796	118,200	123,800	102,500
Net Energy Output (GWh)	39,030	39,600	40,400	42,700	36,500
Fuel Conversion Efficiency (%)	33.0	33.3	34.2	34.5	35.6
OPG INTERNAL ENERGY EFFICIENCY					
Gross Generation (GWh)	114,459	121,425	127,200	143,300	137,600
Net Generation (GWh)	109,181	115,800	122,000	136,900	131,500
Generation Energy Efficiency (%)	95.39	95.37	95.91	95.53	95.57
Internal Energy Saving – Cumulative since 1994 (GWh)	2,783	2,443	2,370	2,133	1,897
Avoided CO_2, NO and SO_2 (tonnes)	2,616,386	2,276,437	2,182,272	1,932,541	1,680,192
$ Value of Energy Savings @ 4.3 cents/kWh market clearing rate	119,660,400	105,049,000			
Annual Incremental Energy Saving (% of internal energy use)	6.4	1.3			
Annual Incremental Energy Saving (GWh)	339.8				

(1) Evergreen previously included in Hydroelectric for 1999-2000

(2) Net generation = gross generation minus total internal energy use (energy produced by and consumed by the generation units, plus energy for common station service drawn from outside the generating station, i.e., from the electricity grid), regardless of whether or not units are connected to the grid.

(3) Hydroelectric generation in 2003 is shown net of the impact of various agreements relating to (i) the diversion of water between Ont. and each of Manitoba and Quebec and (ii) agreements with the NY Power Authority regarding rental of generation facilities, totaling 600 GWh. This includes adjustments for energy flows into Quebec.

Indicator	2003	2002	2001	2000	1999
ATMOSPHERIC EMISSIONS – FOSSIL					
Total Gross Annual CO_2 Emissions (tonnes)	36,498,700	36,710,600	37,000,000	38,500,000	32,100,000
Total Gross Annual SO_2 Emissions (tonnes)	157,809	147,208	149,000	164,100	142,100
Total Gross Annual NO Emissions (tonnes)	39,006	42,279	44,600	50,500	51,400
EMISSION RATES(4) – FOSSIL					
CO_2 Emissions (tonnes/GWh net)	935	927	916	901	880
SO_2 Emissions (tonnes/GWh net)	4.04	3.72	3.69	3.84	3.9
NO Emissions (tonnes/GWh net, as NO)	1.00	1.07	1.1	1.18	1.41
ATMOSPHERIC EMISSIONS – NUCLEAR					
Total Gross Annual CO_2 Emissions (tonnes)	15,961	9,800	56,800	121,600	147,200
Total Gross Annual SO_2 Emissions (tonnes)	3	12	400	914	299
Total Gross Annual NO Emissions (tonnes, as NO)	82	36	100	144	204
ATMOSPHERIC EMISSIONS – OPG					
Total Gross Annual CO_2 Emissions (tonnes)	36,514,661	36,720,400	37,057,000	38,622,000	32,247,000
Total Gross Annual SO_2 Emissions (tonnes)	157,812	147,220	149,400	165,000	142,400
Total Gross Annual NO Emissions (tonnes, as NO)	39,088	42,315	44,700	50,700	51,600
EMISSION RATES(4) – TOTAL OPG					
CO_2 Emissions (tonnes/GWh net)	334	317	304	282	245
SO_2 Emissions (tonnes/GWh net)	1.45	1.27	1.23	1.21	1.08
NO Emissions (tonnes/GWh net, as NO)	0.36	0.37	0.37	0.37	0.39
NUMBER OF REPORTABLE SPILLS					
Category A Spills	0	0	0	0	0
Category B Spills	3	1	0	1	0
Category C Spills	18	26	18	28	43

(4) Emission rates in Appendix B are based on "net generation." Net generation = gross generation minus total internal energy use (energy produced by and consumed by the generation units plus energy for common station service drawn from outside the generating station, i.e., from the electricity grid), regardless of whether or not units are connected to the grid. The emission rate (tonnes/GWh-net) = total emissions divided by the total net energy.

Appendix B

Indicator	2003	2002	2001	2000	1999
PCB MANAGEMENT (tonnes)					
High Level PCB material in storage	2	4	21	65.5	39.9
High Level PCB materials sent for destruction	99	113	189	137	202
Estimated inventory of High-Level PCB material in service[5]	1,304	1,424	1,542	1,660	1,789
Low-Level PCB materials in storage	6	5	7	3.5	19.4
Low-Level PCB material sent for destruction	9	8	3	11.5	8.2
Estimated inventory of Low-Level PCB material in service	4	6	1	2.9	3.1
RADIOACTIVE WASTE MANAGEMENT					
Used fuel – annual production (tonnes of uranium)	1,022	969	800	1,005	1,071
Used fuel in Storage (tonnes of uranium)	28,451	27,429	26,460	25,657	24,520
Low & Intermediate Radioactive Waste produced (m^3)	4,059	4,817	5,299	4,774	4,613
Low & Intermediate Radioactive Waste stored (m^3)	3,481	1,680	1,817	1,637	1,582
UTILIZATION OF SOLID COMBUSTION BY-PRODUCTS					
Total Ash and Gypsum Produced (tonnes)	1,468,310	1,550,063	1,620,000	1,808,700	1,466,300
Total Ash & Gypsum Recycled (tonnes)	824,398	807,560	799,000	762,000	643,200
Diversion Rate (%)	56	52	49	42	44
HAZARDOUS WASTE GENERATION					
Solids (tonnes)	220	225	290	397	126
Liquids (kilolitres)	4,488	6,100	7,941[6]	2,659	2,810
WATER USE (million m^3)					
Turbine flows – hydroelectric stations (total flow)	417,212	447,574	433,772	441,862	422,916
Cooling and service water use (non-consumptive)	13,473	13,852	13,478	13,733	12,446

(5) Includes in-service high-level PCB equipment at Bruce Power.
(6) Volume increase due to boiler cleaning at Pickering and disposal of water treatment wastes and resin at Darlington.

NATIONAL POLLUTION RELEASE INVENTORY (NPRI)

NPRI Emissions: air, water and land[1] - (tonnes unless otherwise specified)	2002[2]	2001	2000	1999	1998
Ammonia	22.37	28.93	30.6	44.4	55.3
Arsenic	25.15	27.13	33.9	30.6	29.6
Asbestos	0	0	0	11.0[3]	0
Benzo(a)anthracene	0.006	0.011	0.013	NR[4]	NR
Benzo(a)phenanthrene	0.000	0	NR	NR	NR
Benzo(a)pyrene	0.003	0.006	0.006	NR	NR
Benzo(b)fluoranthene	0.003	0.009	0.012	NR	NR
Benzo(e)pyrene	0.005	0.010	0.012	NR	NR
Benzo(g,h,i)perylene	0.003	0.010	0.014	NR	NR
Benzo(j)fluoranthene	0.000	0	NR	NR	NR
Benzo(k)fluoranthene	0	0.1 kg	NR	NR	NR
Chromium	121.98	129.96	167.4	118.1	92.9
Cobalt	29.07	38.8	50.3	31.9	26.1
Copper	100.2	123.37	165.6	115.3	84.7
Dibenz(a,h)anthracene	0	0.003	0.004	NR	NR
Dibenz(a,j)acridine	0.001	0	0.019	NR	NR
Dibenzo(a,i)pyrene	0	0.001	0.001	NR	NR
7H-Dibenzo(c,g)carbazole	0	0	0.028	NR	NR
Fluoranthene	0.008	0.011	0.012	NR	NR
HCFC-22	0.81	NR	NR	NR	NR
Hexachlorobenzene	3.92 grams	185.85 grams	884.1 grams	NR	NR
Hydrazine	0.85	0.91	1.18	1.9	1.9
Hydrochloric Acid	9,231.04	8,902.54	9,728.3	7,037.7	6,709.6
Hydrogen Fluoride	551.19	520.1	597.1	339.4	295.0
Indeno(1,2,3-cd)pyrene	0	0.002	0.003	NR	NR
Lead	42.528	42.64	48.6	35.6	26.0
Manganese	159.66	172.46	211.7	142.3	157.9
Mercury	896 kg	821.08 kg	836.1 kg	NR	NR
Nickel	81.77	89.18	103.9	74.7	64.0
n-Hexane	24.56	NR	NR	NR	NR

NPRI Emissions: air, water and land - (tonnes unless otherwise specified)	2002	2001	2000	1999	1998
Perylene	0	1 kg	NR	NR	NR
Phenanthrene	0.067	0.098	0.110	NR	NR
Polychlorinated dibenzo-p-dioxins + dibenzofurans	1.49 g TEQ[5]	1.65 g TEQ	1.24 g TEQ	NR	NR
Pyrene	0.011	0.014	0.015	NR	NR
Selenium	20.79	19.72	16.0	12.1	9.4
Sulphuric Acid	698.93	795.2	949.9	794.7	863.9
Vanadium	214.15	196.76	NR	NR	NR
Zinc	132.17	99.86	109.9	76.8	81.9

Criteria Air Contaminants (tonnes)	Air Releases				
Carbon Monoxide	11755.19	NR	NR	NR	NR
Oxides of Nitrogen (as NO_2)	66245.19	NR	NR	NR	NR
PM – Total Particulate Matter	12479.9	NR	NR	NR	NR
PM10 – Particulate Matter < 10 μ[6]	8341.12	NR	NR	NR	NR
PM2.5 – Particulate Matter < 2.5 μ	3370.92	NR	NR	NR	NR
Sulphur Dioxide	147254.4	NR	NR	NR	NR
Volatile Organic Compounds (VOCs)	5573.6	NR	NR	NR	NR

(1) For detailed information on the breakdown of OPG's NPRI data by emissions to air, water, and land please visit the NPRI Web site at http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm
(2) Year 2003 data was not available at the time of printing.
(3) Asbestos removed from service for disposal.
(4) NR = not reported
(5) g TEQ = grams Toxic Equivalent
(6) μ = microns (particle diameter)

The Sustainable Development Policy

Policy Statement

Ontario Power Generation is committed to becoming a sustainable energy development company. We will work towards this goal by applying the principles of sustainable development[1] to the generation and sale of electricity and related energy products and services. Enhanced environmental performance and increased competitiveness will be achieved through continual improvement in:

- Ecosystem protection,
- Energy and resource use efficiency,
- Pollution prevention, and
- Community relations.

Requirements

OPG will:

- Meet all legislative requirements and voluntary environmental commitments, with the objective of moving beyond compliance.
- Maintain environmental management systems consistent with the International Organization for Standardization (ISO) 14001 Environmental Management specification.
- Integrate environmental and social factors into our planning, decision-making and business practices.
- Apply the precautionary principle to assess the human health risks and environmental damage resulting from our operations, and any potential risks and impacts from new technologies and processes, even where scientific consensus has not yet established the level of risk or damage. Implement cost-effective mitigation measures for impacts that cannot be avoided.
- Develop the use of renewable energy and energy efficient technologies.
- Educate, encourage and empower employees to conduct their activities in an environmentally-responsible and sustainable manner.
- Measure and communicate our progress towards achieving sustainable development.

OPG management is accountable for the implementation of this policy.

The Executive Vice President and Corporate Secretary is accountable for monitoring and reporting progress in implementing this policy on behalf of the President and CEO.

Board of Directors

Date: January 31, 2000

(1) Sustainable development is defined as "development which meets the needs of present generations without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development, 1987)

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We welcome your comments or any questions you may have about this report. Please call 1-866-592-6744 or e-mail us at webmaster@opg.com. If you wish to be placed on a permanent e-mail list to receive this report electronically, please contact Andrea Tomasek at andrea.tomasek@opg.com or phone: 416-592-6844.

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ONTARIO POWER GENERATION